WHAT IS CLAIMED IS:

1. In a point-to-multipoint IP multicast content distribution network of the type using a satellite communications system to bypass congested portions of a digital communications network and having a satellite downlink receiver being positioned within an ISP, NSP, RBOC or similar digital service network, a system for insertion of national advertisements or other content into one or more nationally distributed IP multicast content streams, comprising:

a program content source providing one or more multicast program content streams for distribution;

a content stream encoder having an input for accepting a multicast program content stream and an input for accepting advertisement triggering commands, said encoder providing digital conversion and/or compression of a multicast program content stream and insertion of advertisement triggering codes into a compressed program content output stream;

a programmable stream server, said server converting a multicast program content stream from one or more content stream encoders into IP multicast format; and

an advertisement insertion device array comprising one or more advertisement insertion devices, wherein an advertisement insertion device of said array replaces packets of data received from said stream server and/or inserts packets of data into a data stream received from said stream server, the inserted and replacement data packets comprising video and/or audio advertisement content for distribution.

2. The multicast content distribution network of claim 1 wherein said stream server includes a programmable user interface for managing a transmission schedule of one or more content streams for distribution throughout the content distribution network.

3. The multicast content distribution network of claim 1 wherein said stream server includes sufficient memory for storing portions of compressed digital multicast program content and is programmed for selectively storing and providing said portions to the content distribution network.

4. The multicast content distribution network of claim 1 wherein said advertisement insertion devices are connected to a separate advertisement distribution tracking and billing system.

5. The multicast content distribution network of claim 1 wherein an advertisement insertion device comprises a computer system including an advertisement storage file memory device for storing data packets of advertisement content.

6. The multicast content distribution network of claim 1 wherein an advertisement insertion device comprises a computer system including at least one network interface device for communicating with the stream server and the content distribution network.

7. The multicast content distribution network of claim 1 wherein an advertisement insertion device comprises a computer system including a display monitor and a keyboard input device for providing a user interface.

8. The multicast content distribution network of claim 1 wherein an advertisement insertion device replaces and/or inserts packets of data into a received data stream in response to one or more advertisement triggering codes embedded in the received data stream.

9. In an IP multicast content distribution network of the type using a dedicated bandwidth portion of a high bandwidth digital communications network infrastructure to bypass congested portions of conventional Internet communications to provide IP multicast content to one or more ISP, NSP, RBOC or similar digital service networks, a system for insertion of regionally directed advertisements and/or other regionally directed program content into an IP multicast content stream to be distributed at a regional distribution level to customers of said ISP, NSP, RBOC or similar digital service networks, comprising:

an advertisement insertion device array located at a point of presence of said ISP, NSP, RBOC or similar digital service networks, said advertisement insertion device comprising one or more advertisement insertion devices, wherein an advertisement insertion device receives packets of IP multicast content data via said content distribution network, and inserts or replaces data packets of received IP multicast content with stored data packets of predetermined advertisement content.

10. The multicast content distribution network of claim 9 wherein said advertisement insertion devices are connected to a separate advertisement distribution tracking and billing system.

11. The multicast content distribution network of claim 9 wherein an advertisement insertion device comprises a computer system including an advertisement storage file memory device for storing data packets of advertisement content.

12. The multicast content distribution network of claim 9 wherein an advertisement insertion device comprises a computer system including at least one network interface device for communicating with the content distribution network.

13. In an IP multicast content distribution network, a regional demographic advertisement insertion system for insertion of demographically directed advertisements or other demographically directed content into a regionally distributed IP multicast content stream provided by an ISP, NSP, RBOC or similar digital service network to its regional customers, comprising:

an IP multicast program content generation source providing one or more multicast program content streams to said content distribution network for distribution;

a plurality of data packet replicators, said replicators receiving one or more of said multicast program content streams via said distribution network and producing one or more replicated portions of said multicast program content streams wherein said replicated portions comprise modified UDP data packets having modified Group

Addresses and/or modified destination port numbers corresponding to predetermined targeted recipients; and

an advertisement insertion device array comprising one or more advertisement insertion devices, wherein an advertisement insertion device of said array replaces packets of data received from said plurality of data packet replicators and/or inserts packets of data into a data stream received from said plurality of data packet replicators, the inserted and replacement data packets comprising predetermined video and/or audio advertisement content for distribution to particular targeted recipients.

14. The multicast content distribution network of claim 13 wherein an advertisement insertion device comprises a computer system including an advertisement storage file memory device for storing data packets of advertisement content.

15. The multicast content distribution network of claim 13 wherein said advertisement insertion devices are connected to a separate advertisement distribution tracking and billing system.

16. The multicast content distribution network of claim 13 wherein an advertisement insertion device comprises a computer system including a display monitor and a keyboard input device for providing a user interface.

17. The multicast content distribution network of claim 13 wherein a packet replicator device comprises a computer system including a display monitor and a keyboard input device for providing a user interface.

18. In an IP multicast content distribution network of the type using a dedicated bandwidth portion of a high bandwidth digital communications network infrastructure to bypass congested portions of conventional Internet communications to provide IP multicast content to an ISP, NSP, RBOC or similar digital service network, a system for insertion of national and/or regional advertisements or other content into a distributed IP multicast content stream, comprising:

an IP multicast program content generation source providing one or more multicast program content streams;

a content stream encoder having an input for accepting a multicast program content stream and an input for accepting advertisement triggering commands, said encoder providing digital conversion and/or compression of a multicast program content stream and insertion of advertisement triggering codes into a compressed program content output stream;

a programmable stream server, said server converting a multicast program content stream from one or more content stream encoders into IP multicast format;

an advertisement insertion device array comprising one or more advertisement insertion devices, wherein an advertisement insertion device of said array replaces packets of data received from said stream server and/or inserts packets of data into a data stream received from said stream server prior to providing said data stream to said content distribution network, the inserted and replacement data packets comprising video and/or audio advertisement content for national distribution; and

an advertisement insertion device array located at a point of presence of said ISP, NSP, RBOC or similar digital service network, said advertisement insertion device comprising one or more advertisement insertion devices, wherein an advertisement insertion device receives packets of IP multicast content data via said content distribution network, and inserts or replaces data packets of received IP multicast content with data packets of predetermined advertisement content.

19. The multicast content distribution network of claim 18 further comprising one or more data packet replicators, said replicators receiving one or more of said multicast program content streams via said distribution network and producing one or more replicated portions of said multicast program content streams wherein replicated packets of said replicated portions have modified IP multicast Group Addresses and/or modified destination port numbers corresponding to predetermined targeted IP multicast program content recipients.

20. The multicast content distribution network of claim 19 wherein at least one packet replicator device comprises a computer system including a display monitor and a keyboard input device for providing a user interface.

21. The multicast content distribution network of claim 18 wherein an advertisement insertion device comprises a computer system including an advertisement storage file memory device for storing data packets of advertisement content.

22. The multicast content distribution network of claim 18 wherein said advertisement insertion devices are connected to a separate advertisement distribution tracking and billing system.

23. In an IP multicast content distribution network arrangement that provides one or more IP multicast program content streams of predetermined streaming digital content to subscribing Internet users, said distribution network comprising an arrangement for inserting advertisements or other streaming digital content into a regionally distributed IP multicast content stream provided by an ISP, NSP, RBOC or similar digital service network to its regional customers, a method for inserting advertisements and/or other streaming digital content into predetermined IP multicast program content streams on a per stream basis, comprising the steps of:

a) producing multiple streams of IP multicast program content;

b) embedding one or more trigger codes into predetermined IP multicast program content streams; and

c) distributing said one or more or said streams to a content insertion device located at a point of presence of an ISP, NSP, RBOC or similar regional digital service network provider, wherein said device inserts predetermined advertisements or other digital program content into a particular IP multicast program content stream in response to said trigger codes.

24. The method claim 23 wherein predetermined advertisements or other digital program content to be used for insertion into a particular IP multicast program content stream is maintained on a memory storage device maintained by said content insertion device.

25. The method claim 23 further comprising the steps of:

replicating UDP data packets comprising one or more portions of an IP multicast program content stream received at a point of presence of said ISP, NSP, RBOC or similar regional digital service network provider; and

modifying an IP multicast Group Addresses and/or destination port numbers within said packets to correspond to IP multicast Group Addresses and/or destination port numbers of predetermined targeted IP multicast program content recipients.

26. In an IP multicast content distribution network that provides one or more predetermined IP multicast program content streams of streaming digital content to an ISP, NSP, RBOC or similar regional digital service network for distribution to subscribing Internet users, said distribution network including equipment located at a point of presence of said ISP, NSP, RBOC or similar regional digital service network for inserting streaming digital content into an IP multicast content stream provided by said ISP, NSP, RBOC or similar regional digital service network to its regional customers, a method for inserting demographically targeted advertisements and/or other demographically targeted streaming digital content into IP multicast program content streams on a per stream basis for delivery to predetermined targeted IP multicast program content recipients, comprising the steps of:

a) receiving one or more of said multicast program content streams at said ISP, NSP, RBOC or similar digital service network and replicating received IP multicast data packets to produce one or more replicated portions of said multicast program content streams;

b) modifying IP header and UDP header information per data packet within predetermined replicated portions of said multicast program content streams such that at least some replicated portions comprise UDP data packets having modified Group Addresses and/or modified destination port numbers corresponding to predetermined targeted recipients;

c) inserting data packets comprising a predetermined advertisement or other demographically targeted streaming digital content into one or more of said predetermined replicated portions of said multicast program content streams using corresponding modified IP header and UDP header information per data packet; and

d) providing said replicated portions to particular targeted recipients corresponding to said modified Group Addresses and/or modified destination port numbers.

27. In an IP multicast content distribution network arrangement that provides one or more IP multicast program content streams of streaming digital content to subscribing Internet users, a method for inserting national, regional, and/or demographically targeted information content into one or more multicast streams, comprising the steps of:

a) producing multiple streams of IP multicast program content;

b) replicating IP multicast data packets;

c) modifying IP header and UDP header information per data packet in predetermined replicated data packets to be provided to a particular predetermined recipient;

d) inserting data packets comprising advertisement or other program content into a predetermined IP multicast data stream, said inserted data packets having

correspondingly modified IP header and UDP header information per data packet; and

e) providing said predetermined IP multicast data stream to Internet users corresponding to modified IP header and UDP header information in each data packet.

28. In an IP multicast content distribution network having a regional demographic advertisement insertion system for insertion of demographically directed advertisements or other demographically directed content into a regionally distributed IP multicast content stream provided by an ISP, NSP, RBOC or similar digital service network to its regional customers, a method for mapping multicast program content streams to particular demographically targeted recipients, comprising the steps of:

a) associating one or more IP multicast content stream recipients into one or more demographic categories, each category associated with one or more demographic parameters, said parameters corresponding to one or more predetermined characteristics and/or personal preferences associated with a particular recipient;

b) assigning a particular IP port number and a particular associated demographic offset value to each of said one or more demographic categories, wherein each assigned port number corresponds to a different particular IP multicast content data stream;

c) maintaining a database for storing said demographic categories, associated IP multicast content stream recipients, assigned IP port numbers and associated demographic offset values; and

d) using a particular demographic offset value as an index to a particular port number when providing an IP multicast data stream to a recipient, said particular demographic offset value based on a recipient's demographic characteristics maintained in said database.

29. The method claim 28 wherein said database is a server-side database maintained by said ISP, NSP, RBOC or similar digital service network.

30. The method claim 28 wherein at least a portion of said database information is stored in a cookie on a recipient's computer system.